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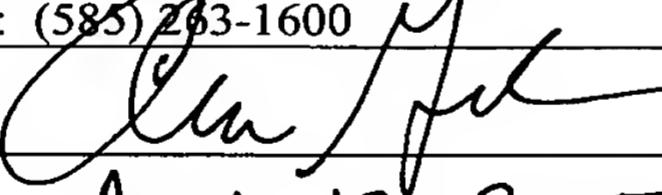
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		Application Number	10/662,914
		Filing Date	September 15, 2003
		First Named Inventor	Lei et al.
		Group Art Unit	1652
		Examiner Name	Rebecca E. Prouty
Total Number of Pages in This Submission	6 pages and 45 references	Attorney Docket Number	19603/4261 (CRF D-2895A)

ENCLOSURES (check all that apply)

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		Remarks <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 14-1138 for the above identified docket number.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Andrew K. Gonsalves Nixon Peabody LLP Clinton Square, P.O. Box 31051 Rochester, New York 14603-1051 Telephone: (585) 263-1658 Fax: (585) 263-1600
Signature	 Registration No. 48,145
Date	Apr 12, 2005

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PATENT
Docket No.: 19603/4261 (CRF D-2895A)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Lei et al.

Examiner:
Rebecca E. Prouty

Serial No. : 10/662,914

Art Unit:
1652

Cnfrm. No. : 2510

Filed : September 15, 2003

For : USING MUTATIONS TO IMPROVE
ASPERGILLUS PHYTASES

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §§ 1.97-1.98

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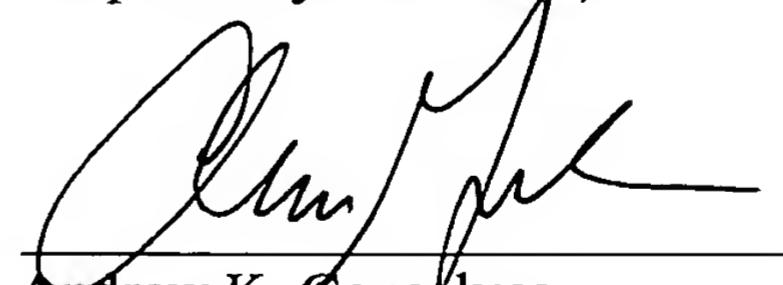
Dear Sir:

Pursuant to 37 CFR §§ 1.97-1.98, applicants hereby bring to the attention of the United States Patent and Trademark Office, the enclosed references listed on the attached PTO-1449 form.

Pursuant to 37 CFR § 1.98(a)(2)(ii), copies of the cited U.S. patent application publications (i.e., Reference Cite Nos. 1-5) and U.S. patents (i.e., Reference Cite Nos. 6-15) are not enclosed.

Pursuant to 37 CFR § 1.97(b)(3), no fee is required. Should it be determined that a fee is required, the Commissioner is authorized to charge any additional fee to Deposit Account No. 14-1138.

Respectfully submitted,

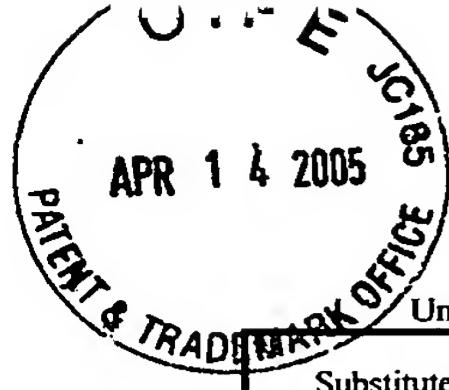

Andrew K. Gonsalves
Registration No. 48,145

Date: April 12, 2005

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PTO/SB/08A (10-01)

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Substitute for form 1449A/PTO				<i>Complete if Known</i>	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	10/662,914
Sheet	1	of	4	Filing Date	September 15, 2003
				First Named Inventor	Lei et al.
				Art Unit	1652
				Examiner Name	Rebecca E. Prouty
				Attorney Docket Number	19603/4261 (CRF D-2895A)

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No. ¹	U.S. Patent Document Number - Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US-2002/0068350 A1	06/06/2002	Kondo et al.	
	2	US-2002/0102692 A1	08/01/2002	Lei	
	3	US-2002/0127218 A1	09/12/2002	Svendsen et al.	
	4	US-2002/0136754 A1	09/26/2002	Short et al.	
	5	US-2003/0092155 A1	05/15/2003	Kostrewa et al.	
	6	US-5,436,156	07/25/1995	Van Gorcom et al.	
	7	US-5,443,979	08/22/1995	Vanderbeke et al.	
	8	US-5,593,963	01/14/1997	Van Ooijen et al.	
	9	US-5,780,292	07/14/1998	Nevalainen et al.	
	10	US-5,834,286	11/10/1998	Nevalainen et al.	
	11	US-5,863,533	01/26/1999	Van Gorcom et al.	
	12	US-6,309,870	10/30/2001	Kondo et al.	
	13	US-6,350,602	02/26/2002	Van Gorcom et al.	
	14	US-6,391,605	05/21/2002	Kostrewa et al.	
	15	US-6,514,495	02/04/2003	Svendsen et al.	
	US-				

FOREIGN PATENT DOCUMENTS					
Examiner Initials	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	16	EP 0 420 358 B1	05/12/1999	Van Gorcom et al.	
	17	EP 0 684 313 A2	11/29/1995	Van Loon et al.	
	18	JP 10-276789	10/20/1998	Kosutoriwa et al.	X
	19	JP 2001-292789	10/23/2001	Van Loon et al.	X
	20	RU 2 113 468 C1	06/20/1998	Van Gorcom et al.	X
	21	WO 00/43503	07/27/2000	Lehmann	
	22	WO 86/01179	02/27/1986	Conti	
	23	WO 91/05053	04/18/1991	Van Gorcom et al.	
	24	WO 99/49022	09/30/1999	Svendsen	

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Substitute for form 1449B/PTO				<i>Complete if Known</i>	
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				First Named Inventor	Lei et al.
				Group Art Unit	1652
				Examiner Name	Rebecca E. Prouty
Sheet	2	of	4	Attorney Docket Number	19603/4261 (CRF D-2895A)

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
	25	GenBank Accession No. AAB96872 (January 16, 1998)		
	26	GenBank Accession No. M94550 (April 27, 1993)		
	27	GenBank Accession No. P34752 (January 25, 2005)		
	28	Han et al., "Expression of an <i>Aspergillus niger</i> Phytase Gene (<i>phyA</i>) in <i>Saccharomyces cerevisiae</i> ," <i>Appl. Environ. Microbiol.</i> 65(5):1915-1918 (1999)		
	29	Han et al., "Role of Glycosylation in the Functional Expression of an <i>Aspergillus niger</i> Phytase (<i>phyA</i>) in <i>Pichia pastoris</i> ," <i>Arch. Biochem. Biophys.</i> 364:83-90 (1999)		
	30	Kostrewa et al., "Crystal Structure of <i>Aspergillus niger</i> pH 2.5 Acid Phosphatase at 2.4 Å Resolution," <i>J. Mol. Biol.</i> 288:965-974 (1999)		
	31	Kostrewa et al., "Crystal Structure of Phytase from <i>Aspergillus ficuum</i> at 2.5 Å Resolution," <i>Nat. Struct. Biol.</i> 4:185-190 (1997)		
	32	Lehmann et al., "Exchanging the Active Site Between Phytases for Altering the Functional Properties of the Enzyme," <i>Protein Sci.</i> 9(10):1866-1872 (2000)		
	33	Lehmann et al., "From DNA Sequence to Improved Functionality: Using Protein Sequence Comparisons to Rapidly Design a Thermostable Consensus Phytase," <i>Protein Eng.</i> 13(1):49-57 (2000)		
	34	Lei et al., "Calcium Level Affects the Efficacy of Supplemental Microbial Phytase in Corn-Soybean Meal Diets of Weanling Pigs," <i>J. Anim. Sci.</i> 72(1):139-143 (1994)		
	35	Lei et al., "Nutritional Benefits of Phytase and Dietary Determinants of its Efficacy," <i>J. Appl. Anim. Res.</i> 17:97-112 (2000)		
	36	Lei et al., "Supplemental Microbial Phytase Improves Bioavailability of Dietary Zinc to Weanling Pigs," <i>J. Nutr.</i> 123:1117-1123 (1993)		
	37	Lei et al., "Supplementing Corn-Soybean Meal Diets with Microbial Phytase Linearly Improves Phytate Phosphorus Utilization by Weanling Pigs," <i>J. Anim. Sci.</i> 71:3359-3367 (1993)		

Examiner Signature		Date Considered	
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Substitute for form 1449B/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Application Number	10/662,914
Sheet	3	of	4	Filing Date	September 15, 2003
				First Named Inventor	Lei et al.
				Group Art Unit	1652
				Examiner Name	Rebecca E. Prouty
				Attorney Docket Number	19603/4261 (CRF D-2895A)

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
	38	Mitchell et al., "The Phytase Subfamily of Histidine Acid Phosphatases: Isolation of Genes for Two Novel Phytases from the Fungi <i>Aspergillus terreus</i> and <i>Myceliophthora thermophila</i> ," <i>Microbiology</i> 143:245-252 (1997)			
	39	Mullaney et al., "Advances in Phytase Research," <i>Advances in Applied Microbiology</i> 47:157-199 (2000)			
	40	Mullaney et al., "Phytase Activity in <i>Aspergillus fumigatus</i> Isolates," <i>Biochem. Biophys. Res. Commun.</i> 275:759-763 (2000)			
	41	Mullaney et al., "Positive Identification of a Lambda gt11 Clone Containing a Region of Fungal Phytase Gene by Immunoprobe and Sequence Verification," <i>Appl. Microbiol. Biotechnol.</i> 35:611-614 (1991)			
	42	Mullaney et al., "Site-Directed Mutagenesis of <i>Aspergillus niger</i> NRRL 3135 Phytase at Residue 300 to Enhance Catalysis at pH 4.0," <i>Biochem. Biophys. Res. Commun.</i> 297(4):1016-1020 (2002)			
	43	Nielsen et al., "The Determinants of α -Amylase pH-Activity Profiles," <i>Protein Eng.</i> 14(7):505-512 (2001)			
	44	Ostanin et al., "Asp ³⁰⁴ of <i>Escherichia coli</i> Acid Phosphatase is Involved in Leaving Group Protonation," <i>J. Biol. Chem.</i> 268(28):20778-20784 (1993)			
	45	Ostanin et al., "Overexpression, Site-Directed Mutagenesis, and Mechanism of <i>Escherichia coli</i> Acid Phosphatase," <i>J. Biol. Chem.</i> 267(32):22830-22836 (1992)			
	46	Pasamontes et al., "Gene Cloning, Purification, and Characterization of a Heat-Stable Phytase from the Fungus <i>Aspergillus fumigatus</i> ," <i>Appl. Environ. Microbiol.</i> 63(5):1696-1700 (1997)			
	47	Rodriguez et al., "Expression of the <i>Aspergillus fumigatus</i> Phytase Gene in <i>Pichia pastoris</i> and Characterization of the Recombinant Enzyme," <i>Biochem. Biophys. Res. Commun.</i> 268:373-378 (2000)			
	48	Rodriguez et al., "Site-Directed Mutagenesis Improves Catalytic Efficiency and Thermostability of <i>Escherichia coli</i> pH 2.5 Acid Phosphatase/Phytase Expressed in <i>Pichia pastoris</i> ," <i>Arch. Biochem. Biophys.</i> 382:105-112 (2000)			

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Sheet	4	of	4	Filing Date	September 15, 2003
				First Named Inventor	Lei et al.
				Group Art Unit	1652
				Examiner Name	Rebecca E. Prouty
				Attorney Docket Number	19603/4261 (CRF D-2895A)

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	49	Tomschy et al., "Active Site Residue 297 of <i>Aspergillus niger</i> Phytase Critically Affects the Catalytic Properties," <i>FEBS Lett.</i> 472(2-3):169-172 (2000)		
	50	Tomschy et al., "Engineering of Phytase for Improved Activity at Low pH," <i>Appl. Environ. Microbiol.</i> 68(4):1907-1913 (2002)		
	51	Tomschy et al., "Optimization of the Catalytic Properties of <i>Aspergillus fumigatus</i> Phytase Based on the Three-Dimensional Structure," <i>Protein Sci.</i> 9(7):1304-1311 (2000)		
	52	Ullah et al., "Cyclohexanedione Modification of Arginine at the Active Site of <i>Aspergillus ficuum</i> Phytase," <i>Biochem. Biophys. Res. Commun.</i> 178(1):45-53 (1991)		
	53	Ullah et al., "Extracellular Phytase (E.C. 3.1.3.8) from <i>Aspergillus ficuum</i> NRRL 3135: Purification and Characterization," <i>Prep. Biochem.</i> 17(1):63-91 (1987)		
	54	van Dijck, P.W.M., "Chymosin and Phytase. Made by Genetic Engineering (No. 10 in a Series of Articles to Promote a Better Understanding of the Use of Genetic Engineering)," <i>J. Biotechnology</i> 67:77-80 (1999)		
	55	Van Etten et al., "Covalent Structure, Disulfide Bonding, and Identification of Reactive Surface and Active Site Residues of Human Prostatic Acid Phosphatase," <i>J. Biol. Chem.</i> 266(4):2313-2319 (1991)		
	56	van Hartingsveldt et al., "Cloning, Characterization and Overexpression of the Phytase-Encoding Gene (<i>phyA</i>) of <i>Aspergillus niger</i> ," <i>Gene</i> 127:87-94 (1993)		
	57	Wodzinski et al., "Phytase," <i>Adv. Appl. Microbiol.</i> 42:263-302 (1996)		
	58	Wyss et al., "Biochemical Characterization of Fungal Phytases (<i>myo</i> -Inositol Hexakisphosphate Phosphohydrolases): Catalytic Properties," <i>Appl. Environ. Microbiol.</i> 65(2):367-373 (1999)		
	59	Wyss et al., "Biophysical Characterization of Fungal Phytases (<i>myo</i> -Inositol Hexakisphosphate Phosphohydrolases): Molecular Size, Glycosylation Pattern, and Engineering of Proteolytic Resistance," <i>Appl. Environ. Microbiol.</i> 65(2):359-366 (1999)		
	60	Yi et al., "Sites of Phytase Activity in the Gastrointestinal Tract of Young Pigs," <i>Animal Feed Science Technology</i> 61:361-368 (1996)		

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